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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,102	06/21/2001	Ryoichi Shinjo	2001_0882A	3927

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EXAMINER

TRAN, THAO T

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 12/11/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No.	Applicant(s)	
	09/885,102	SHINJO ET AL.	
	Examiner	Art Unit	
	Thao T. Tran	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2,4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 9-12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is indefinite due to the use of “the circular electrode surface”. It is not clear to the examiner as to which electrode surface Applicants are trying to convey. If Applicants mean to indicate that this is the low voltage electrode surface, please state so.

Claim 12 is indefinite because it lacks a clear description of how the claimed components are related to each other in terms of structure. Clarification of the structural relations between the cooling medium flow passage, the cooling medium inlet, the cooling medium outlet, the holding plate, and the electrodes is required.

Claim 12 is further indefinite because the claim recites the limitations "the cooling medium flow passage of said holding plate" in lines 3-4 and "said other electrode" in line 7. There is insufficient antecedent basis for these limitations in the claim. It appears that claim 12 is dependent on claim 11, instead of claim 8. If this is so, Applicants should change the dependency of claim 12.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinjo et al. (US Pat. 5,538,695).

In regards to claims 1-2, Shinjo teaches an ozonizer 2 and an electric discharge cell 4 for the ozonizer, the electric discharge cell comprising a pair of electrodes 5 & 6 spaced apart from each other; wherein the electrodes are connected to a power source 10 and electrode 6 has a surface including a plurality of trench grooves (serration-shaped projections); a dielectric plate 7 disposed between the electrodes; and a gas flow path or discharge space 8 between the dielectric and electrode 6 (see Figs. 1-2; col. 3, ln. 8-17; col. 5, ln. 37-56). Shinjo further teaches the trench grooves being substantially parallel with each other (see Fig. 2).

In regards to claim 3, Shinjo teaches electrode 5 having a flat surface with the dielectric on the surface (see Fig. 2).

6. Claims 1-3, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamiya et al. (US Pat. 5,549,874).

In regards to claims 1-2, Kamiya teaches an ozone generator, comprising a pair of electrodes 3 & 4 connected to a power supply 7; a dielectric 2 between the two electrodes; wherein electrode 4 has a plurality of parallel, trench grooves on the surface; and a discharge space or gas flow passage 1 between electrode 4 and the dielectric (see Fig. 4; col. 1, ln. 41-54).

In regards to claim 3, Kamiya teaches electrode 3 having a flat surface and covered by the dielectric 2 (see Fig. 4).

In regards to claim 7, Kamiya teaches the dielectric comprising sapphire (see abstract).

7. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Duarte (US pat. 5,554,344).

In regards to claims 1-2, Duarte teaches an ozone generator, comprising a pair of electrodes 4 & 5, spaced apart and connected to an electric power source, with a dielectric 3 disposed between the electrodes; a gas path 8 between the dielectric and one or both electrodes; wherein the electrode surfaces have a plurality of grooves that are substantially parallel to each other (see Figs. 1-2; col. 3, ln. 37 to col. 4, ln. 10).

8. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Document (JP-2540627).

JP '627 teaches an ozonizer, comprising a pair of electrodes 2 & 3, spaced apart from each other and connected to an electric power source by electrical leads 10 & 11, with a dielectric 1 between the electrodes; a gas path between the dielectric 1 and electrode 2; wherein

electrode 2 has a plurality of parallel trench grooves on its surface, and electrode 3 has a flat surface and is covered by the dielectric (see Figs. 1-2).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinjo as applied to claim 1 above.

Shinjo is as set forth in claim 1 above and incorporated herein.

In regards to claim 6, Shinjo does not teach the ozonizer comprising a plurality of the electric dischargers. However, it has been held within the skill in the art that duplication of parts has no patentable significance unless a new and unexpected result is produced. See *MPEP 2144, Section VIB*.

In regards to claim 8, Shinjo does not teach a specific shape of the electrode surfaces. However, it has been held within the skill in the art that particular configurations of the electrode surfaces would be a matter of choice, since it appears that the discharger would function equally well whether the electrode surfaces are circular or of some other shape, absent persuasive evidence. Furthermore, Applicants do not disclose that the use of circular electrode surfaces would provide more advantages over other configurations of the electrode surfaces. See *MPEP 2144.04, Section IVB*.

In regards to claim 10, it has been held within the skill in the art that apparatus claims must be structurally distinguishable from the prior art and that the manner of operating the device does not differentiate apparatus claims from the prior art. See *MPEP 2114*.

11. Claims 6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya as applied to claim 1 above.

Kamiya is as set forth in claim 1 above and incorporated herein.

In regards to claim 6, Kamiya does not teach the ozonizer comprising a plurality of the electric dischargers. However, it has been held within the skill in the art that duplication of parts has no patentable significance unless a new and unexpected result is produced. See *MPEP 2144, Section VIB*.

In regards to claim 8, the arguments are as presented in claim 1 above.

With respect to the shape of the electrode surfaces, Kamiya does not teach the electrode surfaces being circular in form. However, it has been held within the skill in the art that particular configurations of the electrode surfaces would be a matter of choice, since it appears that the discharger would function equally well whether the electrode surfaces are circular or of some other shape, absent persuasive evidence. Furthermore, Applicants do not disclose that the use of circular electrode surfaces would provide more advantages over other configurations of the electrode surfaces. See *MPEP 2144.04, Section IVB*.

In regards to claim 9, Kamiya teaches the dielectric comprising sapphire (see abstract).

In regards to claim 10, it has been held within the skill in the art that apparatus claims must be structurally distinguishable from the prior art and that the manner of operating the device does not differentiate apparatus claims from the prior art. See *MPEP 2114*.

12. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinjo and JP '627 as applied to claims 1 and 8 above, and further in view of Ishioka et al. (US Pat. 6,027,700).

Shinjo and JP '627 are as set forth in claims 1 and 8 above and incorporated herein.

Shinjo teaches both electrodes being supported by a retaining frame 11 and spacers 12, and that the cooling passage traverses both electrodes (see Fig. 2). However, Shinjo does not teach the cooling passage flow through a holding plate supporting the electrodes.

JP '627 teaches both electrodes being supported by presser frame 9 and packing 8. The flat electrode 3 is further directly supported by a holding plate (water cooled case 6), wherein cooling water traverses the holding plate (see Fig. 1). However, JP '627 does not teach the cooling passage traverses through one of the other electrode.

Ishioka teaches an ozonizer, comprising ground and high voltage electrodes 102 & 104 spaced apart from each other with a dielectric in between; the electrodes being supported by the housing 101 and capillaries 111; wherein cooling water traverses both the high voltage electrode and the support housing (see Figs. 4A-B).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the cooling passage of Shinjo or JP '627, as taught by Ishioka. It has been known within the skill in the art that cooling both of the electrodes, and especially the high voltage electrode, would prolong their lifetime and also would enhance the production of ozone, since it has been known that ozone decomposes faster at higher temperatures.

Allowable Subject Matter

13. Claims 4 and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

Claim 4 is allowable because no prior art has been found to teach or fairly suggest an ozone generator or an electric discharge cell for an ozone generator, comprising a radial passage extending radially from the central space formed at a central portion of an electrode surface; in combination with all of the other limitations of claims 1 and 4.

The examiner is interpreting that claim 12 being dependent on claim 11.

Claim 12 is allowable because no prior art has been found to teach or fairly suggest an ozone generator, comprising the cooling water flow passage of the holding plate and the cooling water flow passage of the other electrode being communicate with each other; wherein the cooling water outlet of the holding plate is communicated with the cooling water outlet of the other electrode; in combination with all of the other limitations in claims 1, 11, and 12.

Contact Information

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 703-306-5698. The examiner can normally be reached on Monday-Friday, from 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703-308-2462. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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December 5, 2002


James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700